

Aviation Selection Test Battery Sample Questions



The following document provides sample items for each knowledge subtest of the ASTB. The sample items are not meant to provide an exhaustive list of the types of questions that will be found in the test. Instead, these questions are meant to familiarize examinees with the format and content of questions found within each section. Item difficulty ratings are provided for each question where applicable, and can be used to gauge how hard a given question is in comparison to similar types of questions typically found on the ASTB. Difficulty ratings range from 'Very Easy' to 'Very Difficult.' All answers are provided at the end of the practice test.

Directions: Each question consists of a problem followed by four possible answer choices. For each question, determine the answer choice that best answers the question.

1. *Difficult*

$$\frac{-2^2[(-4-6^0)(5-3^0)]}{|-6|-[-(-2)]} =$$

- (A) -5
 - (B) 10
 - (C) 20
 - (D) -20
-

2. *Intermediate*

$$12\frac{1}{2} \times \frac{1}{5} = ?$$

- (A) $2\frac{1}{2}$
 - (B) 4
 - (C) $5\frac{1}{4}$
 - (D) 6
-

3. *Easy*

If the hypotenuse of a right triangle is 5 inches long and one of the sides is 4 inches long, how long is the remaining side?

- (A) 2 inches
 - (B) 3 inches
 - (C) 4 inches
 - (D) 9 inches
-

4. *Intermediate*

$$\text{If } (a+1)(a-1) = 3, \text{ then } a^2 =$$

- (A) $\sqrt{2}$
- (B) $\sqrt{3}$
- (C) 4
- (D) 9

5. *Very Difficult*

Which statement is equivalent to $2 + 2\log x - \frac{3}{2} \log y$?

- (A) $\log (4x / \frac{3}{2} y)$
- (B) $\log (x^4 / y^{3/2})$
- (C) $\log (100x^2 / y^{3/2})$
- (D) $2\log(x^2 / y^{3/2})$

6. *Intermediate*

$$\sqrt{\frac{1}{4}} + \sqrt{\frac{1}{16}} =$$

- (A) $1/64$
- (B) $17/256$
- (C) $5/16$
- (D) $3/4$

7. *Intermediate*

A basketball player averages 21 points per game for the first 8 games of the season. If he is held scoreless in the next two games, how many average points per game must he score in his final 6 games in order to complete the season with an overall average of 21 points per game?

- (A) 21
- (B) 28
- (C) 32
- (D) 42

8. *Very Easy*

If n is a positive even integer, which of the following must also be an even integer?

- (A) $3n - 2$
- (B) $4n + 1$
- (C) $5n + 5$
- (D) $6n - 1$

9. *Intermediate*

A coin purse contains coins with values of 1 cent, 5 cents, 10 cents, 25 cents, and 50 cents. Using each coin at least once, what is the minimum number of coins required to equal the highest possible total less than \$2?

- (A) 10
- (B) 11
- (C) 12
- (D) 13

10. *Difficult*

Assume the probability of having a boy is 50% and a girl is 50%. If a family has four children, what is the probability the family has at least two girls?

- (A) $\frac{5}{16}$
- (B) $\frac{1}{2}$
- (C) $\frac{5}{8}$
- (D) $\frac{11}{16}$

11. *Intermediate*

If you flip a coin three times, what is the probability of getting three tails in a row?

- (A) .0625
- (B) .10
- (C) .125
- (D) .333

12. *Easy*

A man is paddling a canoe upstream. Assuming he can paddle at 6 miles per hour and the stream is flowing at a rate of 3 miles per hour, after one hour of paddling, how many miles will he have traveled?

- (A) 2
- (B) 3
- (C) 12
- (D) 18

Reading Skills Test

Directions: Each item consists of a passage which you should assume to be true followed by four possible answer choices. For each item, select the choice that can be inferred only from the passage itself. Some or all of the choices following the passage may be true and reasonable, but only one of them can be derived solely from the information in the passage.

1. *Intermediate*

A storm must pass through different stages before becoming a hurricane. The onset of this process occurs when low pressure air spins inward cyclonically to form the eye of the building storm. During the intermediate stages of development, the storm is first referred to as a tropical depression, later as a tropical storm before increasing in intensity to become a hurricane.

- (A) During the tropical depression stage of hurricane development, the eye is formed by winds moving in a clockwise direction.
- (B) A hurricane is the most violent of all natural phenomena because the eye of the storm is composed of cyclonic air movement.
- (C) Tropical storms do not contain eyes because they develop from high pressure air systems.
- (D) Cyclonic air movement plays a central role in the creation of hurricane force winds.

2. *Easy*

Paper clips may be constructed of metal or of plastic. Some metal clips are covered in rubber to prevent damage to documents caused by rust.

- (A) Paper clips tend to rust.
- (B) Modern paper clips are covered in rubber.
- (C) Rust can damage documents.
- (D) Plastic paper clips tend to damage documents.

3. *Difficult*

There was a barely detectable string dangling from his right sleeve. He was sure no one would notice it, but it still occupied his mind for the better part of the morning. On the other hand, the large ketchup stain he later got on his chest didn't bother him a bit.

- (A) There were two problems with his shirt that caused him some concern.
- (B) The two problems with his shirt did not occur at the same time.
- (C) The ketchup stain didn't bother him because it was barely detectable.
- (D) He worried more about the ketchup stain than about the dangling string.

4. *Intermediate*

The CNO will determine the venue for each meeting. Meetings will be conducted using the most economical method for accomplishing objectives and may use video teleconferencing or formal meeting techniques.

- (A) The CNO prefers to use formal meetings as a means for accomplishing objectives.
- (B) The introduction of video teleconferencing provided organizations with an important means for conducting meetings more economically than the utilization of traditional procedures.
- (C) The authority for establishing meetings, whether through the utilization of teleconferencing or formal meetings, is the responsibility of the CNO.
- (D) There is an ongoing debate surrounding the use of video teleconferencing and its effectiveness in accomplishing objectives.

5. *Easy*

Human DNA is comprised of approximately 3 billion components. Each piece is described using one of four letters—A, C, G, or T. Each component is arranged in a unique and specific order, dictating each human's physical development.

- (A) Parents and their children have identical DNA.
- (B) Each human being has approximately 3 billion T components in his or her genetic makeup.
- (C) A different arrangement of the pieces of a person's DNA would change his or her physical makeup.
- (D) Adults' DNA is comprised of more A, C, G, and T components than children's DNA.

Mechanical Comprehension Test

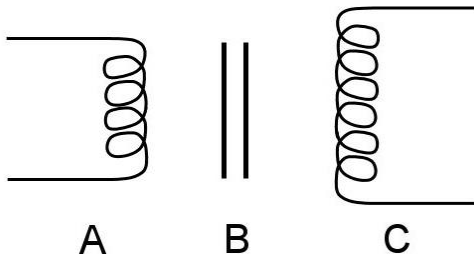
Directions: Each question consists of a problem followed by three possible answer choices. For each question, determine the answer choice that best answers the question.

1. Intermediate

The amplitude of an AC wave necessary to have the same relative voltage, current or power as a DC source is known as _____.

- (A) Peak amplitude
- (B) Average amplitude
- (C) Effective amplitude

2. Very Difficult



In a step-up transformer the electricity is taken from _____.

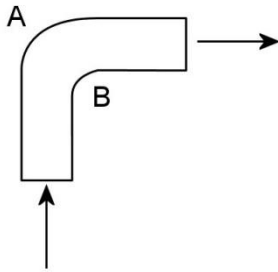
- (A) Point A
- (B) Point B
- (C) Point C

3. Easy

Which of the following is the best example of potential energy?

- (A) A rocket flying though the air
- (B) A roller coaster car moving at a speed of 20.0 m/s
- (C) A heavy ball hanging from a crane

4. *Intermediate*



In the drawing, fluid is flowing through the elbow in the direction shown. If holes were drilled at points A and B and pressure is measured, at which point would pressure be lower?

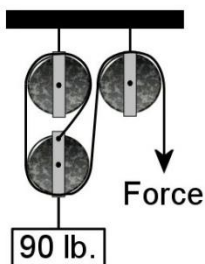
- (A) Point A
- (B) Point B
- (C) No difference (fluid is incompressible)

5. *Very Easy*

Why are compact cars less likely to flip over in a turn compared to sports utility vehicles (SUV)?

- (A) Engines in SUVs are more powerful than engines in compact cars
- (B) The center of mass of compact cars is lower than SUVs' center of mass
- (C) SUVs are wider than compact cars

6. *Easy*



What force is necessary to lift the 90 lb weight using the pulley system shown?

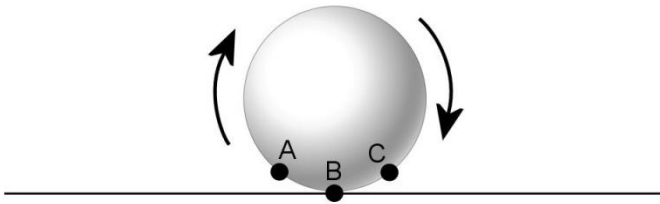
- (A) 30 lb
- (B) 45 lb
- (C) 90 lb

7. *Difficult*

The actual mechanical advantage of a pulley system is defined as the _____.

- (A) ratio of the number of supporting strands to the number of moveable pulleys
- (B) the difference between the required input force and the weight lifted
- (C) the ratio of torques between the output pulley and the driving pulley

8. *Difficult*



If a ball is rolling down a hill as shown, what can be said about the points indicated at that particular point in motion?

- (A) Point A is moving to the left, Point B is at temporarily at rest, Point C is moving to the left
- (B) Point A is moving vertically upward, Point B is moving to the left, Point C is moving vertically downward
- (C) Point A is moving vertically upward, Point B is at temporarily at rest, Point C is moving vertically downward

9. *Intermediate*

A ball is thrown straight up into the air, what is its speed at its highest point?

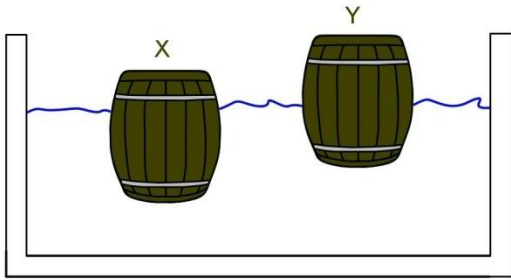
- (A) Zero
- (B) 9.8m/s
- (C) Not enough information

10. *Easy*

If Betty squeezes the middle of an upright, closed plastic soft-drink bottle, where will the greatest increase in pressure occur?

- (A) At the top of the bottle
- (B) At the bottom of the bottle
- (C) Pressure will be equal everywhere in the bottle

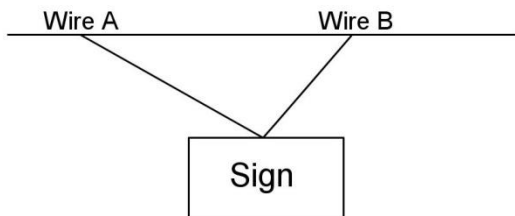
11. *Intermediate*



Two identical barrels are exactly half full of different liquids. When placed in water, the barrels float as shown in the figure. What difference in the liquids is most likely to explain the difference in floating levels?

- (A) Liquid X is more dense than Liquid Y
- (B) Liquid X is colder than Liquid Y
- (C) Liquid X is under more pressure than Liquid Y

12. *Intermediate*



A sign hangs from a ceiling by two pieces of wire. Which of the two wires bears the greater tension?

- (A) Wire A bears the greater tension
- (B) Wire B bears the greater tension
- (C) Both wires experience equal tension

Aviation Nautical Information Test

Directions: Each question consists of a problem followed by four possible answer choices. For each question, determine the answer choice that best answers the question.

1. Easy

Which aircraft generally climbs at a steeper angle?

- (A) Apache AH-64
- (B) C-130
- (C) Cessna 310
- (D) F-4 Phantom

2. Very Difficult

The first Digital-Fly-By-Wire (DFBW) was first tested in 1992 on a _____.

- (A) F-4
- (B) F-8
- (C) A-10
- (D) X-15

3. Difficult

A rating of "AQ" means _____.

- (A) Aviation Bombsight & Fire Control Mechanic
- (B) Aviation Quartermaster
- (C) Aviation Fire Control Technician
- (D) Aviation Support Equipment Technician

4. Intermediate

Pressure altitude is an altitude measured from the standard sea level pressure of _____.

- (A) 29.89
- (B) 29.92
- (C) 29.97
- (D) 29.99

5. Difficult

What are the four cycles of an internal combustion aircraft engine?

- (A) Exhaust, compression, ignition, detonation
- (B) Intake, compression, power, exhaust
- (C) Intake, P-lead, power, ignition
- (D) Ignition, compression, power, detonation

6. *Very Easy*

Which aircraft would always have the right of way?

- (A) A Boeing 747 declaring an emergency
- (B) A hot air balloon
- (C) An experimental aircraft
- (D) The Goodyear Blimp

7. *Intermediate*

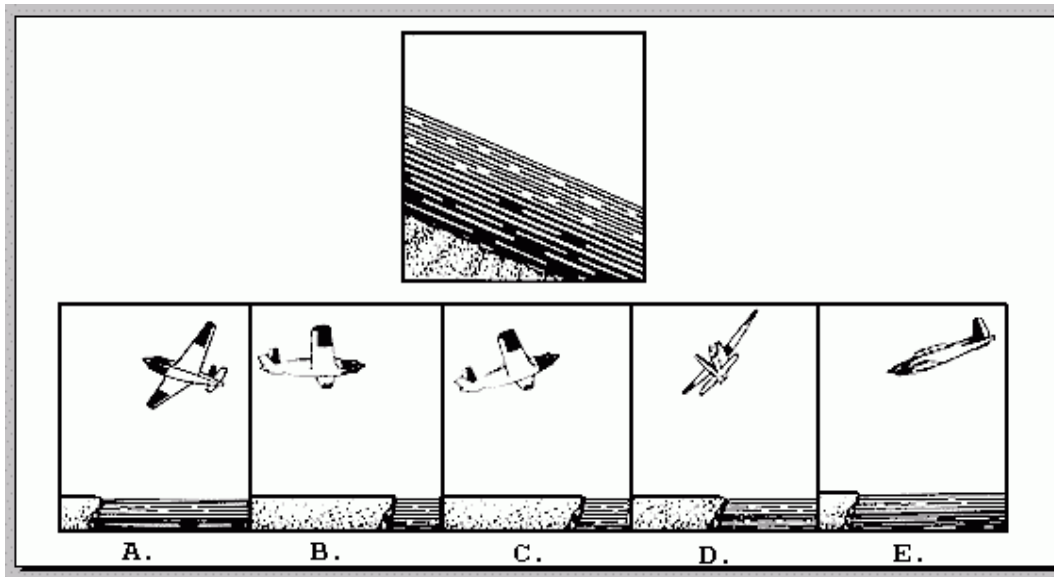
Which navy built the first ships called “aviation vessels” solely for launching aerial vehicles?

- (A) The Swedish Navy
- (B) The English Navy
- (C) The German Navy
- (D) The French Navy

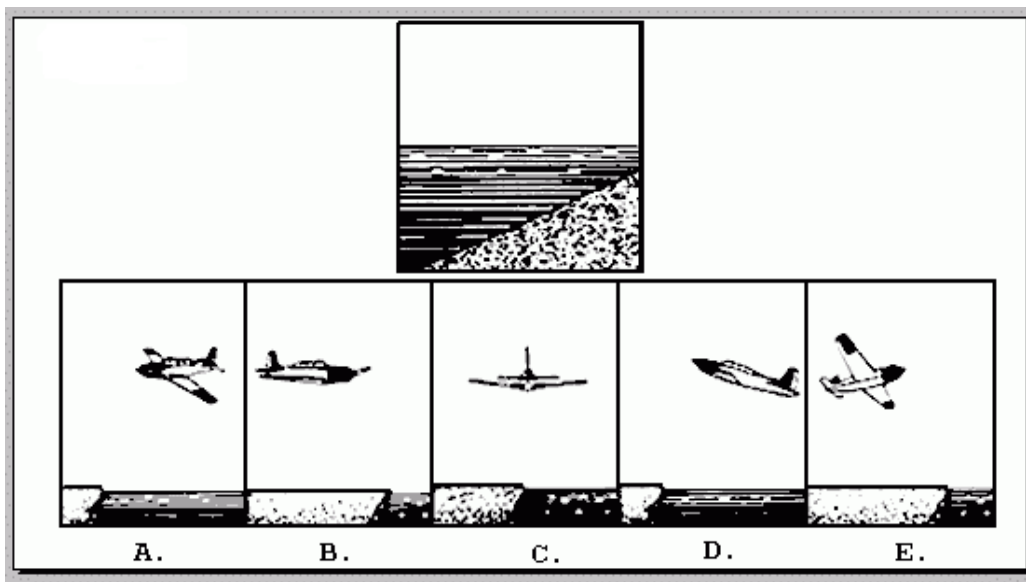
Spatial Apperception Test

Directions: Each problem in this test consists of six pictures—an aerial view of the horizon and five answer options labeled A, B, C, D, and E. The first picture in each row shows the view that the pilot would have looking directly ahead from the cockpit, and the five answer choices show planes flying in different attitudes—not banked or banking left or right, climbing, diving, or flying level, and heading in one of several directions. For each question, you should determine which attitude of the plane correctly matches the view that the pilot sees from the cockpit.

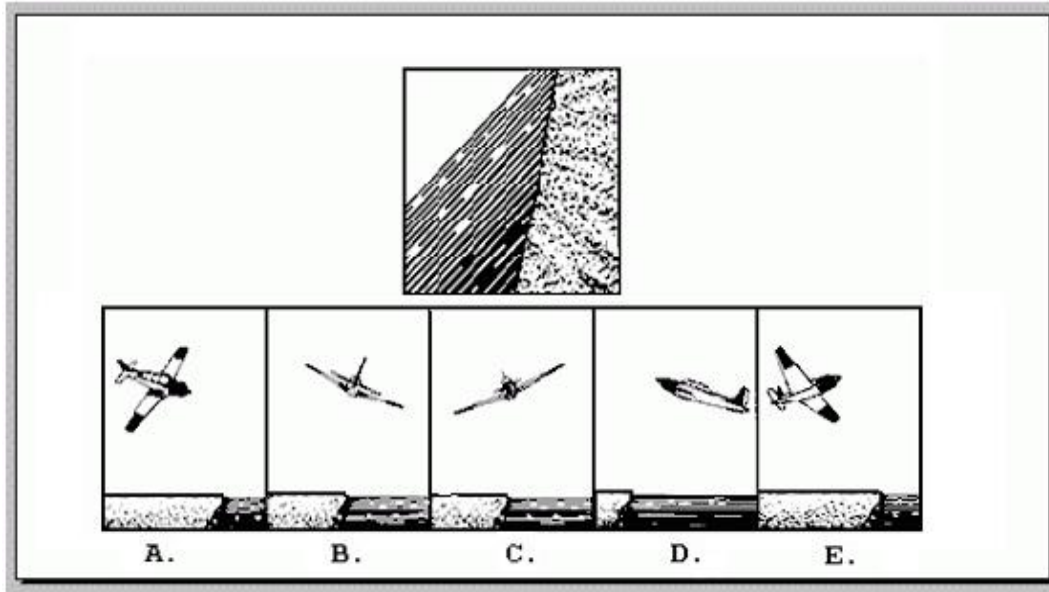
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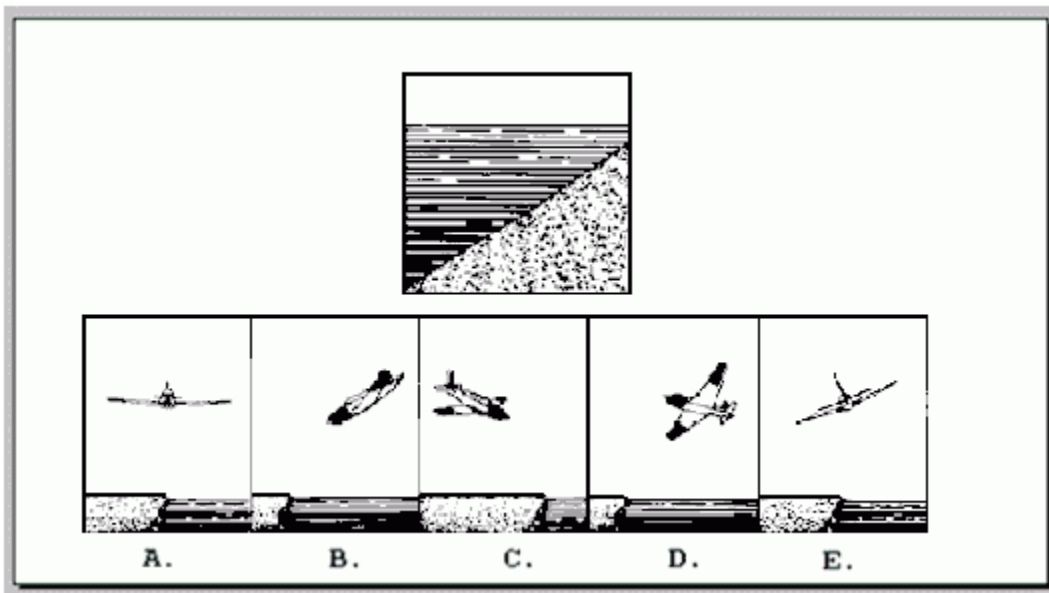
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4



Sample Question Answers

✦ Math Skills Test

1. D 2. A 3. B 4. C 5. C 6. D
7. B 8. A 9. B 10. D 11. C 12. B

✦ Reading Comprehension Test

1. D 2. C 3. B 4. C 5. C

✦ Mechanical Comprehension Test

1. C 2. C 3. C 4. B 5. B 6. A
7. C 8. C 9. A 10. C 11. A 12. B

✦ Aviation and Nautical Information Test

1. D 2. B 3. C 4. B 5. B 6. A 7. A

✦ Spatial Apperception Test

1. The correct answer is B— as the pilot banks to one side the horizon tilts to the other side.
2. The correct answer is B— the horizon is not tilted indicating that the plane is flying level and diagonally out to sea.
3. The correct answer is A — the plane is flying diagonally out to sea and is in a slight dive, but still banked.
4. The correct answer is C — the plane is flying diagonally out to sea, but in a slight dive.